THE LONGEVITY OF ENTOMOLOGISTS

By Harry B. Weiss

I had often wondered if entomologists as a group had a longer average life than the average for the population as a whole but the amount of work involved in assembling the data for a large number of entomologists always deterred me from trying to find out. However, upon the appearance of Mathilde M. Carpenter's excellent "Bibliography of Biographies of Entomologists" (The American Midland Naturalist, vol. 32, no. 1, p. 1–116, 1945) I found that the enormous job of assembly had been done and that from this source I could draw the type of information that was needed. Miss Carpenter's bibliography, among other things, contains the birth and death dates for 2187 entomologists born between 372 B.C. and 1920. The term entomologist includes both professional and amateur workers including some who, achieving fame in other fields, made some contribution to entomological science. It also includes a few women, but in numbers these are so few that the list as it stands consists almost entirely of white males from all parts of the world. It was impossible to separate the amateurs from the professionals and this means that other occupations are included. For the present purpose this is a defect that is difficult to correct. On the whole, however, it can be safely assumed that the list represents an occupational group. The country of birth and cause of death are not known, as these facts had no place in a bibliography of biographies. In order to remedy this one would have to read all the individual biographies and even then the information would not be complete because many obituaries fail to mention the exact cause of death. In view of this the mortality of the subjects considered herein must be put down as due to all causes and the conclusions must be considered as applying to the entomologists of the world, rather than of any specific country.

Table I shows the number of deaths and its percentage of the total for each age from 19 to 98. The largest number of deaths occurred in the age group 70–74, the highest number occurring

at age 72. The number dying at each age is also shown by the frequency curve (Figure 1), the peak of which is at 72. The weighted average age at death for the entire 2187 is 65.48 years.

TABLE I

MORTALITY TABLE OF 2187 ENTOMOLOGISTS BORN BETWEEN 372 B.C. AND 1920 SHOWING DISTRIBUTION BY AGE, NUMBER AND PERCENTAGE OF TOTAL

Age at death. Years	No. dead	Per cent of total	Age at death. Years	No. dead	Per cent of total	Age at death. Years	No. dead	Per cent of total
19	1	0.045	46	21	0.96	73	69	3.15
20	2	0.090	47	21	0.96	74	66	3.01
21	1	0.045	48	27	1.23	75	64	2.92
22	1	0.045	49	24	1.09	76	60	2.74
23	2	0.090	50	25	1.14	77	56	2.56
24	1	0.045	51	23	1.05	78	52	2.37
25	6	0.27	52	21	0.96	79	57	2.60
26	10	0.45	53	29	1.32	80	54	2.46
27	9	0.41	54	19	0.86	81	50	2.29
28	9	0.41	55	35	1.60	82	42	1.96
29	8	0.36	56	41	1.87	83	35	1.32
30	10	0.45	57	44	2.01	84	36	1.64
31	17	0.77	58	37	1.69	85	29	1.32
32	12	0.54	59	36	1.64	86	27	1.23
33	12	0.54	60	46	2.10	87	24	1.09
34	8	0.36	61	38	1.73	88	24	1.09
35	13	0.59	62	44	2.01	89	18	0.82
36	8	0.36	63	44	2.01	90	11	0.50
37	8	0.36	64	52	2.37	91	10	0.45
38	16	0.73	65	59	2.69	92	8	0.36
39	19	0.86	66	49	2.24	93	3	0.13
40	12	0.54	67	62	2.83	94	5	0.22
41	15	0.68	68	59	2.69	95	2	0.090
42	15	0.68	69	51	2.33	96	4	0.180
43	13	0.59	70	69	3.15	97	1	0.045
44	14	0.64	71	68	3.11	98	1	0.045
45	22	1.00	72	71	3.24	.....	.....	.....
							2187	100.00

According to Table II, which summarizes the distribution of deaths by age groups, it is apparent that approximately 30 per cent had died before reaching 60 years. Of the remaining 70

per cent, 23 per cent died between 60 and 69, 29 per cent between 70 and 79 and about 18 per cent between 80 and 98. The same thing is exhibited graphically by Figure 2 which is a cumulative curve showing the successive additions of the percentages of deaths (from Column 3, Table I) at successive ages.

Table III exhibits the average age at death of 2183 entomologists born between 1500 and 1914. Of the entire original group of 2187, those born before 1500 and after 1914 were excluded

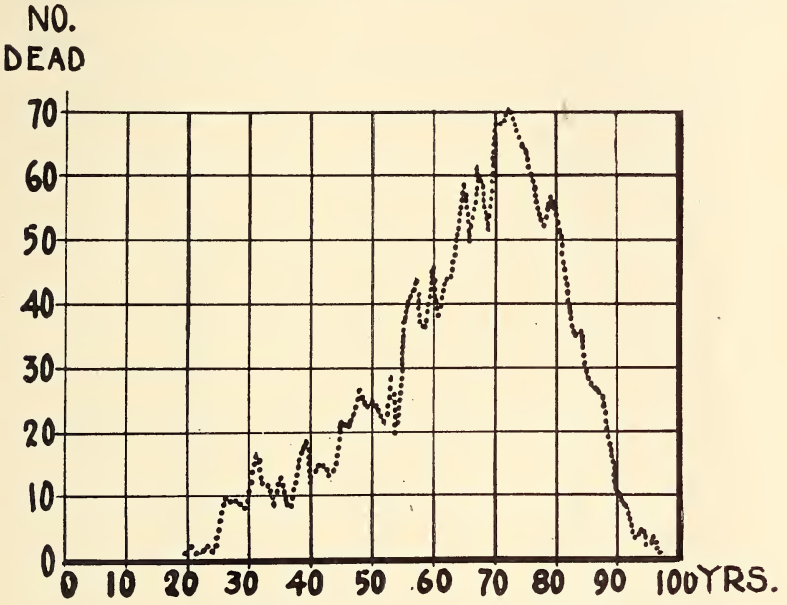

FIG. 1. Frequency curve showing the distribution of the deaths of 2187 entomologists by ages.

because of the smallness of their number. Entomologists were scarce during the sixteenth and seventeenth centuries and for this reason these first two periods cover 100 years each. The eighteenth century has been split into 10-year periods and the nineteenth into 5-year periods. The average age at death during each period within the entire range from 1500 to 1859 shows a remarkable degree of uniformity. From 1860 to 1914 the average age at death shows a steady decline. This is because there are still many entomologists living who were born after 1859.

As practically all who were born between 1500 and 1859 have now died, the average ages at death for the different periods between these dates are of special interest. For the 1600 entomologists who were born between 1500 and 1859, the average age at death for the entire group was 69.09 years. By scanning the average ages at death for the various periods between 1500 and 1859 in Table III, one may note that the variations from this average are not extensive. In fact, the standard deviation is only 3.147.

TABLE II

DISTRIBUTION OF DEATHS OF 2187 ENTOMOLOGISTS BY AGE GROUPS

Age group. Years	Per cent of total
19–24	0.36
25–29	1.94
30–34	2.66
35–39	2.90
40–44	3.13
45–49	5.24
50–54	5.33
55–59	8.81
60–64	10.22
65–69	12.78
70–74	15.66
75–79	13.19
80–84	9.67
85–89	5.55
90–94	1.66
95 and over	0.36
	100.00

Life tables for early times are mostly incomplete and fragmentary, but Pearl has shown the changing expectation of life at different periods based on data from various sources. For example, in Roman Egypt the expectation of life (or the average number of years that persons of a given age will probably live) for a child of about 3 years was a little over thirty years. In Breslau, for the years 1687 to 1691, the expectation of life at birth was about 34 years. In Carlisle, England, 1780–1787, the

expectation at birth was close to 40 years, and in continental United States in 1910, it was about 50 years. In 1940 in continental United States* the expectation of life at birth for white males was 62.94 years, and for white females 67.31 years. The figures in all the life tables show that at all early ages the expec-

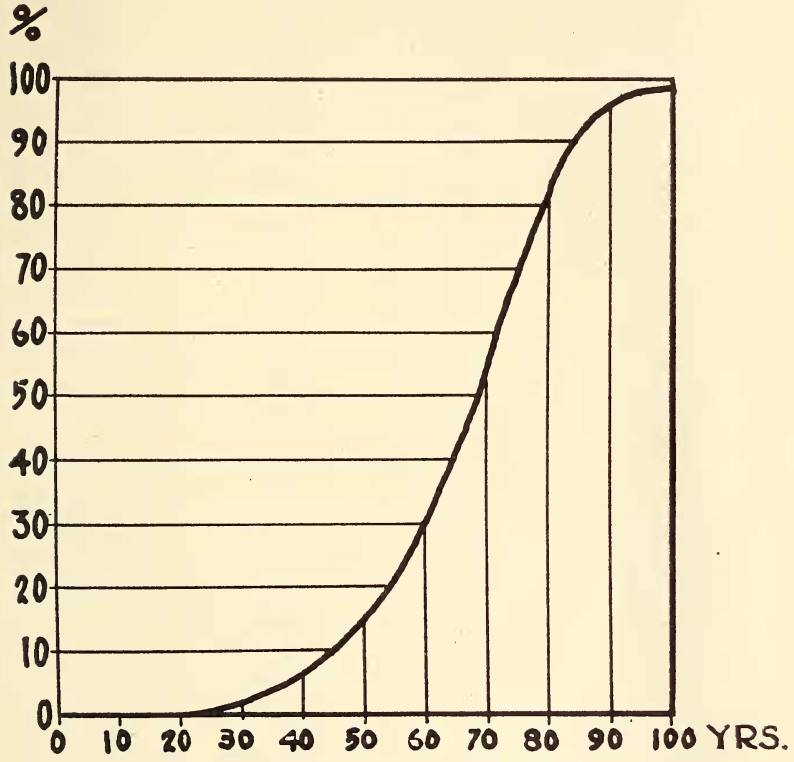

FIG. 2. Cumulative curve showing the successive additions of the percentages of deaths of 2187 entomologists at various ages. For example at the age of 60, approximately 30 per cent of the total number had died.

tation of life is longer now than it has been during past times. And in addition, they indicate that there is no trend toward a longer life-span.

It is apparent, from Table III, that all during the periods when the expectation of life at birth was low for populations in general

* Statistical Bull. Met. Life Ins. Co., 22 (12): 6–8, 1941.

TABLE III

AVERAGE AGE AT DEATH OF 2183 ENTOMOLOGISTS
BORN BETWEEN 1500 AND 1914

Born from	No.	Range in ages at death	Average age at death
1500–1599	12	29–83	60.83
1600–1699	31	34–91	68.03
1700–1709	7	54–84	72.85
1710–1719	6	55–72	62.50
1720–1729	18	51–86	67.94
1730–1739	14	31–90	65.64
1740–1749	15	56–88	76.33
1750–1759	23	28–91	70.33
1760–1769	19	45–90	68.42
1770–1779	53	35–89	72.96
1780–1789	53	41–92	71.88
1790–1799	104	38–97	69.66
1800–1804	83	28–96	69.61
1805–1809	78	30–98	70.02
1810–1814	90	33–91	67.53
1815–1819	80	26–91	70.57
1820–1824	103	26–90	68.63
1825–1829	83	26–92	66.53
1830–1834	79	35–94	67.91
1835–1839	124	25–94	68.95
1840–1844	129	29–96	70.17
1845–1849	120	31–94	70.25
1850–1854	128	24–89	67.59
1855–1859	148	28–87	68.20
1860–1864	136	26–82	65.71
1865–1869	118	25–77	62.94
1870–1874	67	37–73	60.01
1875–1879	70	27–67	54.18
1880–1884	67	30–63	47.70
1885–1889	45	25–58	44.26
1890–1894	28	27–59	42.25
1895–1899	20	20–47	36.30
1900–1904	14	25–41	36.07
1905–1909	11	23–35	29.90
1910–1914	7	26–29	27.71

and while the average length of life was continually increasing to its now comparatively high level, entomologists continued to live an average of 69 years.

Persons who live long lives generally attribute this fact to certain habits such as abstinence from alcohol or tobacco, special diets, exercise or no exercise, fresh air, etc., or to other habits which personally give them the entire credit for their long life-spans. As a matter of fact, the length of life of any individual, barring accidents including infections, etc., is dependent upon the impetus received during conception and this is largely the result of hereditary determinants. Karl Pearson reached the conclusion many years ago that from 50 to 75 per cent of the general death-rate is determined by the forces of heredity and is not susceptible of moderation by sanitary measures or preventive medicine. Preventing accidents, and infections, practicing hygiene, curing diseases, etc., will add to the life-span of many individuals but the life-span is determined largely at the time of birth.

In every population from early times to the present a certain percentage or part of the population has always lived, by reason of parentage and environment, many years beyond the average for the balance of the population. From the average ages at death of entomologists who were born between 1500 and 1859, it is apparent that they have always been recruited, for the most part, from among that portion of the population that lived the longest. The gap between the constant high average length of life of an entomologist in the past and the present average length of life for the population at large is decreasing because the population at large is living longer by reason of the measures taken to increase national health. Unless the ranks of entomologists continue to be renewed from that part of the population that lives the longest, they may not enjoy this advantage in the future. At any rate, they deserve no special credit for their long lives however useful they may be. The credit, if any, should go to their long-lived parents.